

BEFORE THE
POSTAL REGULATORY COMMISSION
WASHINGTON, D.C. 20268-0001

PERIODIC REPORTING
(PROPOSAL THIRTEEN)

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Docket No. RM2015-7

COMMENTS OF AMAZON FULFILLMENT SERVICES, INC.

(July 8, 2015)

Pursuant to Order No. 2455, Amazon Fulfillment Services, Inc. ("Amazon") respectfully submits these comments to the June 8, 2015 supplemental filing of United Parcel Service, Inc. ("UPS") and the supplemental report of its econometric witness, Dr. Kevin Neels. Amazon's comments are supported by a declaration of Dr. Christian T. Lundblad, the Edward M. O'Herron Distinguished Scholar and Professor of Finance at the Kenan-Flagler Business School of the University of North Carolina.

INTRODUCTION AND SUMMARY

Customers who buy from Amazon rely on package services provided by the United States Postal Service, both market dominant and competitive, as a vital distribution channel. So do the customers of the independent merchants (manufacturers, wholesalers, and retailers, large and small) who sell goods on Amazon and other online commerce websites.

Amazon has established a transportation and distribution network engineered for two-day (or less) delivery, including elements that complement the USPS "final mile"

delivery services, all in an effort to enable the USPS to deliver parcels to customers, with quality service and at an appropriate price, seven days per week.

Amazon has become increasingly concerned about efforts to persuade the Postal Regulatory Commission to create an artificial price umbrella for private carriers by forcing up the minimum prices that the USPS must charge for its package services. The econometric cost models submitted by Dr. Neels, an econometrician engaged by a competitor of the USPS, on March 18 and June 18 in this docket are based on flawed data and do not justify such a result. As Professor Lundblad explains in his supporting declaration, the Commission should not accept any of the models proposed by Dr. Neels, because none of them is sufficiently credible.

The main flaw in Dr. Neels' preferred model, the "National Form 3999 Model," is its reliance on imputed values for the explanatory variables for deviation parcel, in-receptacle parcel, and collection mail volumes. These variables are critical to any analysis of the volume variability of parcel mail. The National Form 3999 data set, however, lacks data on these volumes. Dr. Neels' refusal to use the results of the field studies performed by the USPS for the missing variables forced him to develop imputed values instead. Dr. Neels' imputation procedure causes many of the most important explanatory variables to be highly correlated with each other, a flaw known as multicollinearity. The multicollinearity is severe enough to make the model useless.

Dr. Neels' fallback model, "Modified Proposal 13," is also too defective to use. It relies on parcel volume data that all parties and all of their experts (including Dr. Neels) agree are of very low quality. In addition, many of the explanatory variables are also correlated with each other. The poor quality of the data and the multicollinearity of the

explanatory variables hopelessly obscure the causal effect, if any, of parcel volumes on regular delivery costs.

Finally, the criticisms of the USPS model offered in this docket are insignificant and unsubstantiated. The USPS has used data sets in a way that preserves important information. The USPS has implemented field studies (in lieu of flawed operational data) and treated outlier data in accordance with standard econometric practice. Dr. Neels' challenges to the assumptions made by the USPS have failed to disprove them.

COMMENTS

I. AMAZON'S BUSINESS AND AMAZON'S INTEREST IN THIS CASE

A. Amazon's Business

Amazon Fulfillment Services, Inc. is a wholly owned subsidiary of Amazon.com, Inc., a publicly traded company (AMZN-NASDAQ) that is headquartered in Seattle, Washington. Amazon, which was incorporated in 1994 and opened its virtual doors on the World Wide Web in 1995, seeks to be Earth's most customer-centric company. It is guided by four principles: customer obsession rather than competitor focus, passion for invention, commitment to operational excellence, and long-term thinking.

Amazon serves a variety of customers and focuses on price, convenience, and selection. Amazon's retail customers can browse, read reviews, search, and purchase through the company's retail websites and mobile applications. Amazon also offers services that enable a wide variety of independent merchants (including manufacturers, wholesalers, and retailers, many of which are family operations or small businesses) to

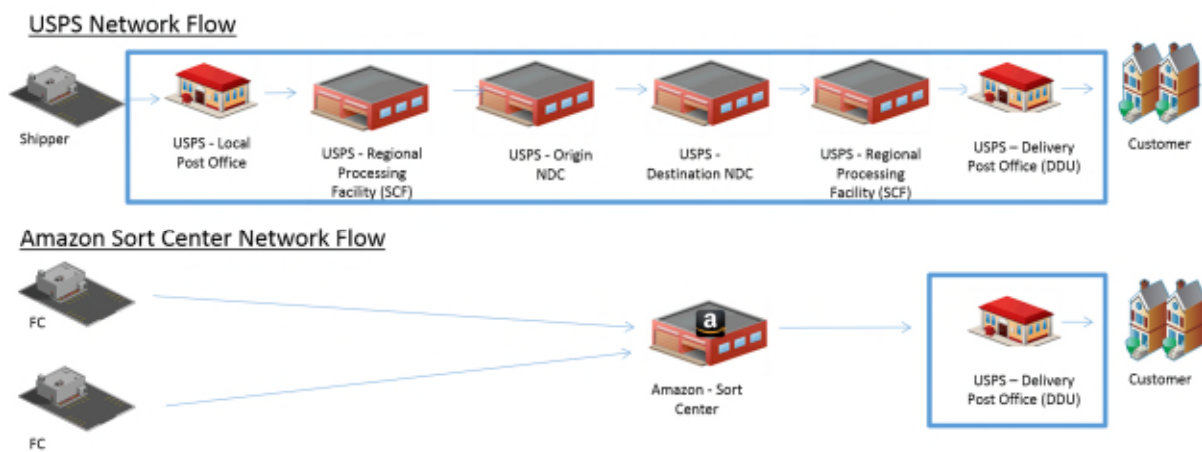
sell their products on Amazon websites and mobile applications. Many of these merchants also elect to have Amazon fulfill their customer orders through Amazon's operations and transportation network.

Amazon engineers solutions to meet exacting delivery promise deadlines while offering its customers the lowest prices possible through low everyday product pricing and a variety of low cost shipping options in two days or less. For example, Amazon offers free shipping for orders of eligible items fulfilled by Amazon in the amount of \$35 or more. The company also offers a popular Prime program, an annual membership program for \$99 a year that offers customers unlimited free two-day shipping on more than 20 million items across all categories, among many other benefits.

To achieve this, Amazon continually seeks ways to improve its operating efficiencies and minimize its costs, including arranging for shipment of customer orders through multiple carriers, including the USPS, UPS, FedEx, and other commercial package carriers. Amazon works with all of these carriers to build strong relationships and innovative solutions that achieve fast delivery and low prices for customers. Competition within the package delivery industry has driven down customer shipping prices and has led participants to improve service and drive down their internal costs to compete for volume.

Amazon has found that its technology and sortation infrastructure enable the USPS to deliver large volumes of packages quickly and reliably. Like some of the commercial package carriers, Amazon has invested in building sortation centers at locations optimized for injecting packages deep into the USPS network. By the end of 2014, the company had made investments in infrastructure to open and operate more

than 15 sortation centers in the U.S., with more to come in 2015. At the sortation centers, Amazon receives and sorts millions of parcels coming from more than 50 fulfillment center (“FC”) warehouse facilities, so that parcels arrive at each USPS Destination Delivery Unit (“DDU”) already presorted for delivery to the customer. The following figure illustrates the flow of Amazon parcels from FCs to Amazon sortation centers, and then to USPS DDUs for final delivery to the customer:



For deliveries coming from Amazon sortation centers, the USPS provides only final mile delivery services. Amazon arranges for the transportation from its fulfillment centers, sortation at the sortation center, and delivery of sorted parcels to USPS facilities. Individual USPS facilities receive these packages in the early morning, so that USPS carriers from that same facility can deliver those packages to the addressees the same day. Amazon created innovative technology and developed efficient processes (including Amazon improvements in labelling and advance data transmission) to enable the USPS to reduce the costs of providing those final mile services. This arrangement benefits the USPS by letting it make better use of its facilities, equipment and personnel throughout the week (as described further below) and provide final mile delivery without incurring the

costs of building additional capacity in its upstream logistics network. In a single day, a typical Amazon sortation center will sort tens of thousands of packages, speeding up delivery times for customers as well as providing later daily cutoff times for customer orders.

The USPS is the only major national outbound parcel service in the United States that has agreed to meet the needs of Amazon's customers by making deliveries on Sunday. Sunday delivery increases Amazon's ability to meet customer demand for deliveries seven days per week. Sunday delivery also promotes efficiencies in the Amazon fulfillment network and the USPS delivery network by enabling Amazon to spread shipping across seven days each week. As with other sortation center deliveries, Sunday deliveries arrive at USPS post offices pre-sorted and ready for delivery, and because Amazon provides destination address information in advance the USPS has improved efficiency on Sundays by operating only from select hub locations and tailoring routes to actual requirements. Amazon volume in turn helps the USPS operate more efficiently. The Sunday delivery volumes enable the USPS to generate additional revenue from buildings and other existing assets that would otherwise be underused during the weekend. The independent merchants who have contracted with Amazon to fulfill their customers' orders, and the customers of those independent merchants, also benefit from delivering to their customers seven days a week.

Online commerce saves consumers money and precious time. All online customers – including Amazon's customers and customers of independent merchants that sell on Amazon – rely on commercial package carriers like the USPS to deliver their packages.

B. Amazon's interest in this case.

A perennial risk of minimum price regulation—in common carrier regulation, public utility regulation, and antitrust—is the risk that competitors of regulated firms will persuade regulators to suppress price competition by forcing up the minimum prices that a regulated firm can charge, thereby creating a “price umbrella” for competing carriers. Predatory pricing or cross-subsidization of competitive end-to-end services is often alleged by rival firms—but rarely proven. *Matsushita Elec. Industrial Co. v. Zenith Radio Corp.*, 475 U.S. 574, 589 (1986) (“predatory pricing schemes are rarely tried, and even more rarely successful”). A far greater threat to the public interest is the risk that false allegations of predatory or noncompensatory pricing of end-to-end services will lead to regulatory cartelization of the regulated firm's prices.

In the context of package delivery service, artificially high regulatory floors on the prices that the USPS may charge would not only result in artificially high prices for USPS package delivery, but would also create a regulatory pricing umbrella for supracompetitive pricing (i.e., prices that are too high to be sustained in a competitive market) by *competing* private carriers. If inaccurate modeling of USPS attributable costs led to needlessly inflated prices for USPS package delivery services, competing private carriers would raise their own rates as well. For these reasons, Amazon has become increasingly concerned about efforts to increase the costs attributed by the Commission to USPS package services.

Amazon and the millions of American consumers that buy goods through online commerce are relying on the Commission to ensure that proposals from private carrier competitors of the USPS are closely and rigorously scrutinized. The Commission's

assessment of the right model to be used for allocating the USPS' city carrier expenses among its delivery products is of particular importance because City Carrier Street Time costs are one of the largest cost segments associated with package services. If the Commission were to credit the models supported by a private carrier—which are offered in an effort to support large increases in the share of City Carrier Street Time costs that are attributed to changes in package mail volume—then the greater cost attribution would come with direct and painful costs to online commerce customers that the USPS serves. Unlike the USPS, the prices charged by private carriers are not regulated by the Commission (or any other federal agency), but instead each private carrier is free to set its prices as high or low as it believes is in its commercial self-interest.

No private carrier should be permitted to use this docket to impair competition. As explained in the remainder of these comments, cost attributions proposed by a competitor of the USPS are not supported by its commissioned econometric studies, because reliance on flawed data effectively undermines all conclusions that might be drawn. Both the attributions and the studies should be rejected by the Commission. The USPS' proposal in this proceeding updates and improves on the City Carrier Street Time study that the Commission has appropriately approved in previous proceedings. The Commission should again credit the USPS' study because it is prepared from reliable data in accordance with sound econometric practice.

II. NONE OF THE ECONOMETRIC MODELS SUBMITTED BY DR. NEELS IN THIS DOCKET ACCURATELY ESTIMATES THE RELATIONSHIP BETWEEN VOLUME AND CITY CARRIER STREET TIME.

The Commission and the USPS have been considering refinements to City Carrier Street Time costing methods since 2010. On November 18, 2010, the Commission

issued an order in Docket No. RM2011-3, *Priorities for Future Data Collection and Analytical Work Relating to Periodic Reporting*, initiating that proceeding and listing the variability of City Carrier Street Time costs first among five “candidate areas for improvement in data collection and analysis.” Order No. 589, Attachment, Page 1.

In the intervening years, updating the City Carrier Street Time variability study became the main focus of Docket No. RM2011-3, with the USPS detailing its proposed data sources and methods in written updates to the Commission and technical conferences, including six major updates:

- On January 12, 2012, the USPS provided an update on its progress, with a focus on the City Carrier Street Time variability, at a technical conference at the Commission.
- On May 25, 2012, the USPS filed a report on its City Carrier Street Time variability scoping study at the Commission.
- On August 25, 2012, the USPS provided a briefing on its scoping study and an update regarding its subsequent progress at a technical conference.
- On April 18, 2013, the USPS filed written updates on costing studies, including City Carrier Street Time variability.
- On August 7, 2013, the USPS provided an update on its progress on multiple studies, including City Carrier Street Time variability, at a technical conference.

- On October 7, 2013, the USPS provided an additional written update on its City Carrier Street Time variability study.

Despite the proceeding's long duration and express objective of allowing interested parties input into costing methods,¹ no private carriers made any filings at all in the proceeding.²

After the many updates provided in Docket No. RM2011-3, the USPS filed its current proposal concerning the costing of City Carrier Street Time in Docket No. RM2015-7 on December 11, 2014. The Commission set the case for a technical conference on January 14, with comments by other interested parties due on March 11, and reply comments due on April 8. In Order No. 2389, the Commission extended the last two deadlines to March 18 and April 15, respectively.

On March 18, 2015, more than two months into the proceeding, UPS submitted a rival econometric model developed by a consultant, Dr. Kevin Neels. Report of Kevin Neels (March 18, 2015) ("Neels Report"). On June 18, 2015—after the Commission ordered the USPS to make a larger Form 3999 dataset available for use by Dr. Neels, and then extended this docket to allow time to file additional comments based on the dataset—Dr. Neels effectively withdrew his March 18 model in favor of two new models.

¹ "Order No. 104 contemplated that a strategic rulemaking would develop an inventory of longer-term data collection and analysis needs, comprehensively evaluate these needs, and devise a plan for meeting these needs, with input from mailers, the interested public, the Postal Service and Commission staff. *Id.* This proceeding is the Commission's first strategic rulemaking." Docket No. RM2011-3, PRC Order No. 589 at 2.

² A further discussion of this history appears in the Reply Comments of PSA (May 13, 2015) at 2-3.

Dr. Neels' preferred model (the "National Form 3999 Model") is a cross-sectional regression, run across ZIP Codes using a quadratic functional form similar to that used in the USPS model, that regresses total street time against explanatory variables, derived in part from Form 3999 volumes for most types of mail, and other ZIP Code characteristics. Because the Form 3999 dataset lacks volume information for three critical variables—in-receptacle parcels, deviation parcels, and collection mail—Dr. Neels derives imputed values for these variables by performing three separate regressions to impute for approximately 11,000 ZIP Codes served by city carriers based upon actual volume data collected by USPS in its field studies of 300 ZIP Codes. Lundblad Decl. ¶¶ 18-20.

Dr. Neels also offers a fallback proposal (the "Modified Proposal 13 Model") in case the Commission rejects his preferred model. The fallback model relies on a variant of the USPS regular delivery model, to which he has added Form 3999 parcel volumes as an explanatory variable. Based on the results of this model, Dr. Neels recommends distributing 2.9 percent of regular delivery costs to individual products using a parcel distribution key. Neels Supp. Report (June 18, 2015) at 43.

The remainder of this section explains why the Commission should accept none of the three econometric models offered by Dr. Neels, discussing in turn (1) the "National Form 3999" model, (2) the "Modified Proposal 13" fallback model, and (3) the model sponsored by Dr. Neels on March 18 and effectively abandoned by him on June 18.

A. The National Form 3999 Model

The primary flaw in the National Form 3999 model is its use of imputed parcel and collection mail volumes. Substantial multicollinearity results, rendering an assessment of marginal costs impossible.

The reason for Dr. Neels' resort to imputed values is that the National Form 3999 data set lacks some of the volumes necessary to directly measure the relationship between City Carrier Street Time costs and mail volume (by type). In particular, the Form 3999 data set lacks deviation parcel, in-receptacle parcel, and collection volumes. Instead of relying on the results of the field studies performed by the USPS to obtain the missing information, Dr. Neels derived imputed values for the three volume variables. To do so, he fitted three binomial regressions (one for each of these three types of mail) onto several candidate explanatory variables that are available for the larger collection of ZIP Codes in the National Form 3999 data set. Lundblad Decl. ¶¶ 18-20.

The imputed values render the model useless. First, the values for deviation parcel, in-receptacle parcel, and collection volumes derived by Dr. Neels correlate very poorly with the explanatory variables used. As a result, the imputed variables produces a massive "errors-in-variables" problem when they are regressed against City Carrier Street Time. The resulting standard errors are much larger than Dr. Neels recognizes. Lundblad Dec. ¶¶ 21-24.

An even larger problem created by Dr. Neels' imputation approach is multicollinearity. Multicollinearity is a circumstance in which two or more supposedly independent explanatory variables in a multiple regression in fact correlate with each

other.³ “When predictors become more correlated, the estimate of individual regression coefficients becomes more unreliable and, thus, the effects of the individual independent variables become difficult to measure accurately.”⁴ The greater the multicollinearity between two variables, the less precise are the estimates of individual regression parameters; even a large sample with substantial multicollinearity may not provide sufficient information for the expert to determine whether there is a relationship between a dependent variable and a purported explanatory variable.⁵ Moreover, when multicollinearity is present, even modest changes in the data can produce wide swings in the resulting coefficient estimates, wreaking havoc on the analysis and limiting the conclusions one can reliably draw from it. Lundblad Decl. ¶¶ 25-27. The Commission has recognized that multicollinearity can be “a major obstacle to the successful modeling of street time cost data.” Order No. 1482 in Docket No. R2006-1 (November 8, 2006) at 5.

Indeed, both UPS and Dr. Neels have themselves previously invoked multicollinearity as a ground for disregarding econometric studies. Docket No. RM2015-7, UPS Comments on Postal Service Proposal (March 18, 2015) at 4-5 n. 7; Docket No. R2000-1, Rebuttal Testimony of Dr. Neels (filed August 14, 2000) at 19-20.

Dr. Neels’ imputation approach injects massive multicollinearity into his model because several of the explanatory variables used to derive the imputed values for deviation parcel, in-receptacle parcel, and collection volumes—including the number of

³ David H. Kaye and David A. Freedman, “Reference Guide on Statistics,” in *Reference Manual on Scientific Evidence* (3d ed. 2011) at 289.

⁴ *Realcomp II, Ltd. V. FTC*, 635 F.3d 815, 834 (6th Cir. 2011) at n. 13 (citing Jacob Cohen et al., *Applied Multiple Regression/Correlation Analysis for Analysis of the Behavioral Sciences* 419-420 (3d ed. 2003)).

⁵ Kaye and Freedman, *supra*, at 324, 325.

delivery points and mail volumes of non-parcel shapes—are also used as separate explanatory variables in his second stage regressions of the relationship between mail volumes and City Carrier Street Time. Lundblad Decl. ¶¶ 28-39. This can be readily observed graphically. The correlations between the three imputed volumes from Dr. Neels’ preferred imputation method and the explanatory variable for the number of delivery points (“DP”) are 93 percent for deviation parcels, 90 percent for in-receptacle parcels, and 66 percent for collection mail, respectively. Figures 1 through 3, which are taken from Professor Lundblad’s declaration, illustrate this correlation:

Figure 1
Scatter Plot of Imputed Deviation Parcel Volume vs. Delivery Points

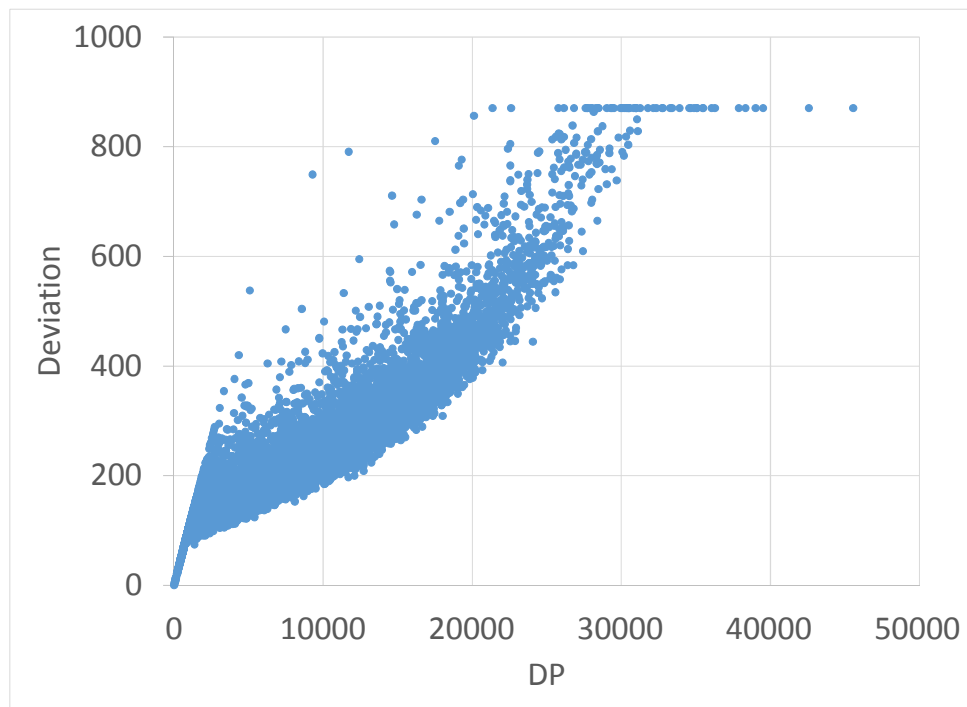


Figure 2
Scatter Plot of In-Receptacle Parcel Volume vs. Delivery Points

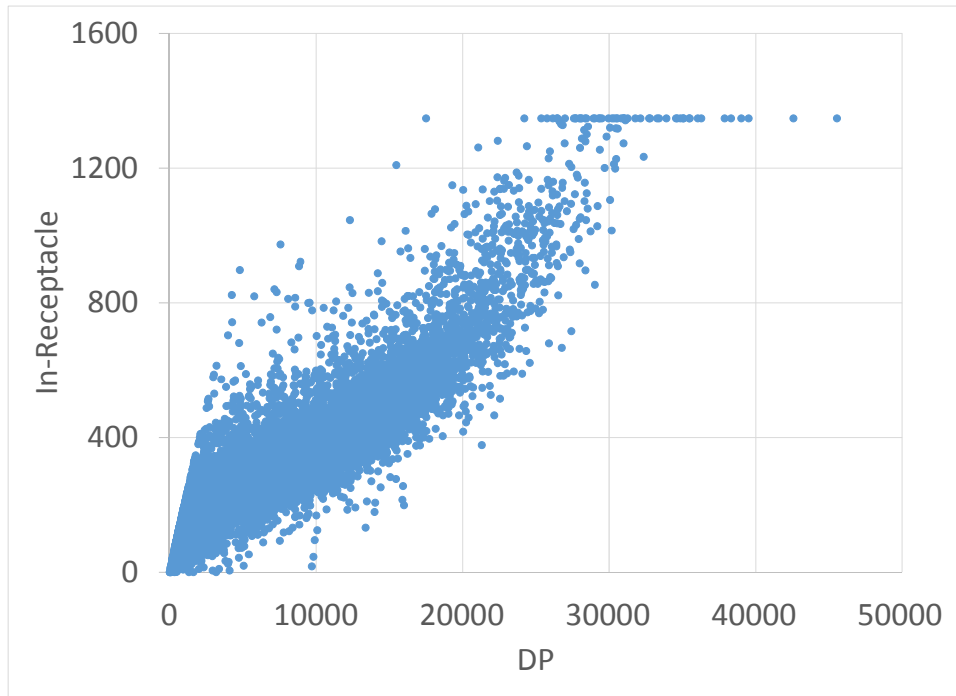
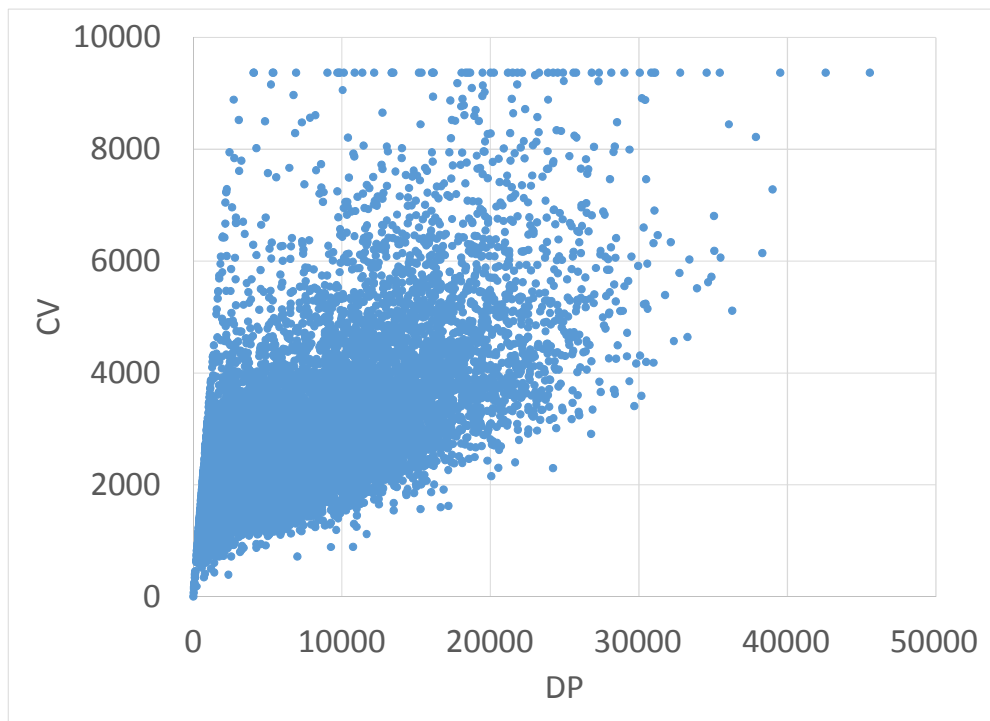


Figure 3
Scatter Plot of Collection Volume vs. Delivery Points



Professor Lundblad has calculated for each coefficient in Dr. Neels' National Form 3999 Model an additional statistic, the variance inflation factor ("VIF"), a term that measures the extent to which a regression is tainted by multicollinearity. The VIF values reveal that only 6 of the more than 60 explanatory variables used in the regression are untainted by significant multicollinearity problems. Lundblad Decl. ¶¶ 31-33.

This multicollinearity results not only from Dr. Neels' imputation approach, but also from his decision to allow all of the squared and cross-product terms to appear in the regression, with no regard for the high degree of correlation that many of those explanatory variables naturally have among themselves. Lundblad Decl. ¶ 34.

To underscore the disastrous effects of the multicollinearity on the model, Professor Lundblad performed a sensitivity analysis by replacing Dr. Neels' imputation assumptions with four alternative assumptions: (1) a full imputation approach in which all of Dr. Neels' candidate explanatory variables are used to impute the three missing volume series; (2) exclusion of mail volume variables because they directly feature in the second stage model directly; (3) exclusion of both mail volume and delivery point variables because they directly feature in the second stage model; and (4) exclusion of mail volume, delivery point, and other explanatory variables that are not statistically significant. Lundblad Decl. ¶ 35.

As Table 2 of Professor Lundblad's declaration shows, the imputation R^2 's are highly sensitive to the choice of explanatory variables used in the imputation model. The most important explanatory variable seems to be the explanatory variable for delivery points ("*DP*"); the R^2 's decline significantly when *DP* is not used (Lundblad Decl. ¶¶ 36-67):

Table 2**R²'s of 1st Stage Regressions**

	Deviation	In-Receptacle	Collection Volume
Neels' Model	54%	63%	32%
Full Model	70%	67%	47%
Excluding Mail	67%	66%	43%
Excluding Mail, DP	41%	32%	25%
Excluding Mail, DP, Non-Significant	35%	25%	17%

More important is the sensitivity of the results of Dr. Neels' second stage model to relatively minor variations in the specification of the first-stage imputation. Table 3 of Professor Lundblad's Declaration, reproduced below, illustrates this. The five plausible imputation exercises show in the table generate five very different impressions of the marginal cost of delivering deviation parcels. Indeed, some imputations even cause the model to report that the marginal cost of deviation parcel volume is *negative*. Dr. Neels has offered no justification for preferring his assumptions to any of these, and no such justification is apparent to Professor Lundblad. Lundblad Decl. ¶¶ 38-39.

Table 3**R²'s and Marginal Costs of 2nd Stage Regressions**

	Neels' Model	Full Model	Excluding Mail	Excluding Mail, DP	Excluding Mail, DP, Non-Significant
R ²	95%	95%	95%	95%	95%
Dev Variability	12%	-6%	-9%	-11%	-8%
CV Variability	5%	4%	4%	5%	4%
IRP Variability	4%	6%	11%	9%	3%
Total Variability	56%	50%	46%	45%	42%
Dev MC	162.1	-81.25	-124.9	-135.1	-91.89
CV MC	5.745	9.644	3.938	4.514	4.025
IRP MC	38.42	47.08	96.47	69.48	25.12

These counterintuitive and often nonsensical results underscore what should be obvious: that no economic inference about relevant costs can be drawn from Dr. Neels' National Form 3999 Model. Lundblad Decl. ¶ 39.

B. Dr. Neels' Modified Proposal 13 Model

Dr. Neels' Modified Proposal 13 Model also suffers from multicollinearity. Six of the eight explanatory variables for the Form 3999 parcel volume (its linear, square, and cross-product terms) suffer from this flaw. The size of the VIFs for the parcel variables indicates that the coefficients on the parcel volume variables are picking up correlations to other variables, not a real relationship between parcel volume and regular delivery time. As with the National Form 3999 Model, one simply cannot reliably infer relevant marginal costs (as derived from regression coefficients) from a regression model with such severe multicollinearity. Lundblad Decl. ¶¶ 41-42.

Dr. Neels' Modified Proposal 13 Model also suffers from severe data problems. Form 3999 data are inadequate to provide reliable estimates of parcel volumes, as the USPS has emphasized and UPS has conceded. USPS Library Reference USPS-RM2015-7/2, Preface (filed March 2, 2015); UPS Comments on Postal Service Proposal Thirteen Regarding City Carrier Street Time Costs (March 18, 2015) at 27; Dr. Neels Supplemental Report (March 18, 2015) at 7-8; UPS Comments (June 8, 2015) at 5 & 18; *accord*, Lundblad Decl. ¶¶ 43-46. Moreover, all evidence indicates that the data problems go beyond values of zero. Lundblad Decl. ¶ 47. In addition, the low explanatory power of Dr. Neels' Form 3999 parcel volume measure in his imputation of deviation parcel volumes (confirmed by additional regressions performed by Professor Lundblad) strongly

suggests that data suffer from quality problems beyond missing volumes. Lundblad Decl. ¶ 48.

These flaws cannot be brushed off on the theory that, when an explanatory variable is contaminated by random noise, the relevant regression coefficient is biased downward. *Cf.* Neels Supplemental Report at 43, n. 51. First, the presumption of attenuation bias no longer holds in multivariate linear regression models, and the Modified Proposal 13 Model is a multivariate regression. Second, when the specification is nonlinear, the bias is also not as clear; the intuition for linear models can potentially lead us astray for nonlinear models. Finally, a critical condition for establishing attenuation bias is that the noise characterizing the parcel volume data is indeed entirely random. If the incidence of missing data is correlated with other relevant data employed in the specification, then the estimator is very hard to interpret. As Dr. Neels has acknowledged, there “appeared to be a pattern to the distribution of these zero values.” In other words, the noise does not appear to be random. Lundblad Decl. ¶ 49-50.

C. The Multiplicative Model Proposed By Dr. Neels In His March 18 Declaration

In his June 8 supplemental report, Dr. Neels abandoned the multiplicative model that he proposed in his March 18 initial report. Out of an abundance of caution, however, Professor Lundblad has identified in an appendix to his declaration the main defects in Dr. Neels’ multiplicative model. Lundblad Decl., App. A.

III. RESPONSE TO CRITICISMS OF USPS COST MODEL

Dr. Neels and UPS devotes much of their June 8 submissions to criticisms of the United States Postal Service's Proposal 13 Model (the "USPS Model"), apparently out of a hope that the Commission might accept one of his own models despite its defects if the Commission can be persuaded that the USPS Model is worse. In particular, Dr. Neels and UPS focus on the USPS': (1) use of a panel data set; (2) assumption that parcel volume is unrelated to regular delivery time; (3) reliance on field studies; and (4) data scrubbing. These criticisms are wrong, as described further in the remainder of this section, and they do not justify adoption of the flawed models of Dr. Neels instead of the USPS Model.

A. The Postal Service's Use Of A Panel Data Set Was Appropriate.

On the theory that analysis of temporal variation is of negligible value, Dr. Neels collapses the USPS panel data set by running cross-sectional regressions on ZIP Code-level averages. Dr. Neels' justification for this approach—that USPS' use of a panel data set produces "short-run" variability estimates—is unfounded. In the time-series dimension of the data panel, two volume measures are significant at the 10 percent level. Hence, rejecting the panel data set destroys relevant information in the data concerning temporal variability. To the extent that temporal variation is of any importance, the panel data structure employed in creation of the USPS Model is preferred. Lundblad Decl. ¶¶ 52-55; see also Order No. 203 in Docket No. RM2008-1, *Periodic Reporting Rules* (April 16, 2009) at 24-25 (ordering the USPS to file CRA in a more disaggregated form, which would "support model building with the use of time series *and panel data*") (emphasis added).

B. Dr. Neels Has Failed To Establish Any Significant Relationship Between Parcel Volume and Regular Delivery Time.

Neither Dr. Neels' National Form 3999 Model nor his fallback Modified Proposal 13 Model prove his claim that a significant relationship exists between parcel volume and regular delivery time. The data in each model are too poor, and multicollinearity is too severe to support any conclusions about this supposed relationship. Lundblad Decl. ¶ 56.

C. The Postal Service Reasonably Relied On Field Studies.

Dr. Neels' criticisms of the USPS' reliance on field studies are unfounded. The use of field studies is well supported in the econometric literature. Lundblad Decl. ¶ 57. It is also well supported by Commission precedent. See, e.g., R71-1 PRC Op. & Rec. Decis. (Aug. 28, 1975) at 26 n. 1; *id.* at 48 (the "Cost Ascertainment System has successfully over the years determined through sampling techniques or special studies designed for the purpose the factors which cause costs to be incurred."); R76-1 PRC Op. & Rec. Decis. (June 30, 1976) at 69, 303; R84-1 PRC Op. & Rec. Decis. (Sept. 7, 1984) at 397 ("Special studies are designed to illuminate a specific area of service that may not be picked up with as much detail by the RCA.") R90-1 PRC Op. & Rec. Decis. (Jan. 4, 1991) at ¶¶ 4066, 5989, 6627; R94-1 PRC Op. & Rec. Decis. (November 30, 1993) at ¶ 3077, 3168, 5317 n. 98; MC95-1 PRC Op. & Rec. Decis. ¶ 3128; R2000-1 PRC Op. & Rec. Decis. (November 13, 2000) at ¶ 3231 ("the Commission rejects the UPS proposal and recommends that the Service conduct a special study to determine the cost of sorting parcel shaped mail"); *id.* at ¶ 5640 (adopting a cost redistribution based on a "special study" presented by a USPS witness "in rebuttal testimony"); *id.* at ¶ 6132; R2006-1 PRC Op. & Rec. Decis. (February 26, 2007) at ¶ 3008, 3010-3015, 3035.

Moreover, Dr. Neels' unwarranted faith in the reliability of "operational" data is unsupported in this case. It is not clear that operations personnel responsible for collecting the Form 3999 parcel volume data consider it valuable for their independent operational purposes, and the data were not collected in a way that is compatible with the analytical framework. In this case, a field study is superior to use of flawed operational data. Lundblad Decl. ¶¶ 58-63.

D. The Criticisms Of The Postal Service's Data Scrubbing Are Unfounded.

The criticisms of the USPS' data scrubbing are also without merit. The trimming of obvious outliers has long been recognized as appropriate and desirable in statistics and econometrics. If the data are patently wrong or implausible, then dropping them is entirely reasonable. Lundblad Decl. ¶ 64. The USPS has carefully documented in its workpapers its standards and procedures for determining what data to discard. Library Reference USPS-RM2015-7/1 (filed December 11, 2014). None of these procedures appear "odd or impactful." Lundblad Decl. ¶ 65-67. Instead, the observations removed as outliers were a modest share of the total data points, and the reasons given from the deletions were sensible.

CONCLUSION

For the reasons discussed above, the Commission should reject the three econometric models proposed by Dr. Neels, and adopt the model proposed by the USPS as the best evidence of record.

Respectfully submitted,

David M. Levy
Robert P. Davis
VENABLE LLP
575 7th Street, N.W.
Washington, DC 20004
(202) 344-4732

Counsel for Amazon Fulfillment Services, Inc.

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